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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,910	11/18/2003	Yinghui Dan	MONS:146US	5658

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SONNENSCHN NATH & ROSENTHAL LLP
P.O. BOX 061080
SOUTH WACKER DRIVE STATION, WILLIS TOWER
CHICAGO, IL 60606

EXAMINER

KUBELIK, ANNE R

ART UNIT	PAPER NUMBER
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1638

MAIL DATE	DELIVERY MODE
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11/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/715,910	Applicant(s) DAN ET AL.	
	Examiner Anne R. Kubelik	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 5-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 1 September 2009 has been entered.
2. Claims 1-15 are pending. Claims 5-15 are withdrawn from consideration as being drawn to a nonelected invention.
3. This application contains claims 5-15 drawn to an invention nonelected with traverse in the response filed 29 May 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01.
4. The rejection of claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Kulkarni et al (US Patent 6,365,407, filed March 2001) in view of Packer et al (1995, Free Rad. Biol. and Med. 19:227-250) is withdrawn in light of Applicant's amendment of the claims.
5. The rejection of claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Benson et al (1997, Phyton 37(3):31-38 in view of Packer et al (1995, Free Rad. Biol. And Med. 19:227-250) is withdrawn in light of Applicant's amendment of the claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a), which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enríquez-Obregón et al (1997, *Biotechnologia Aplicada* 14:169-174) in view of Packer et al (1995, *Free Rad. Biol. Med.* 19:227-250).

The claims are drawn to a method of transforming plant cells and regenerating a transformed plant therefrom by culturing the plant cell on media containing the antioxidant lipoic acid.

Enríquez-Obregón et al teach a method for introducing a macromolecule into a plant cell in culture, wherein the method comprises transforming a plant cell with a nucleic acid and culturing the cell on medium comprising an antioxidant at a concentration of 11-750 μM ; the presence of the antioxidant increased the explant viability (Table 2; ascorbic acid was used at a concentration of 85 or 170 μM , cysteine at a concentration of 330 or 750 μM , and silver nitrate at a concentration of 11 or 29 μM). Enríquez-Obregón et al do not teach regenerating a plant from the transformed plant cell or use of lipoic acid as the antioxidant.

Packer et al teach lipoic acid is a biological antioxidant (Table 1).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using an antioxidant for increasing transformation efficiency taught by Enríquez-Obregón et al, to use lipoic acid as described in Packer et al as the

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antioxidant. One of ordinary skill in the art would have been motivated to do so because Packer et al teach that lipoic acid is the ideal antioxidant (pg 228, right column, paragraph 2).

8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peri et al (1996, Nature Biotechnol. 14:624-628) in view of Packer et al (1995, Free Rad. Biol. Med. 19:227-250).

The claims are drawn to a method of transforming plant cells and regenerating a transformed plant therefrom by culturing the plant cell on media containing the antioxidant lipoic acid.

Peri et al teach in a method of transforming grape cells and regenerating a transformed plant therefrom, culturing the plant cell on media containing the antioxidant polyvinylpolypyrrolidone (PVPP) at a concentration of 25-500 μ M increased the number of viable calli and plants obtained and transformation efficiency (Table 1; paragraph spanning the columns on pg 625; Figure 3). The antioxidant was required to obtain stable transformed grape plants (pg 627, left column, paragraph 1-2). Peri et al do not teach use of lipoic acid as the antioxidant.

Packer et al teach lipoic acid is a biological antioxidant (Table 1).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using an antioxidant for increasing transformation efficiency and making stable transformed grape plants possible taught by Peri et al, to use lipoic acid as described in Packer et al as the antioxidant. One of ordinary skill in the art would have been motivated to do so because Packer et al teach that lipoic acid is the ideal antioxidant (pg 228, right column, paragraph 2).

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9. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai et al (US Patent 6,369,298, filed April 1997 in view of Packer et al (1995, Free Rad. Biol. Med. 19:227-250).

The claims are drawn to a method of transforming plant cells and regenerating a transformed plant therefrom by culturing the plant cell on media containing the antioxidant lipoic acid.

Cai et al teach that in a method of transforming sorghum cells and regenerating a transformed plant therefrom, culturing the plant cell on media containing an antioxidant at a concentration of 250 μ M increased the transformation frequency (column 23, lines 2-24). Cai et al do not teach use of lipoic acid as the antioxidant.

Packer et al teach lipoic acid is a biological antioxidant (Table 1).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of using an antioxidant for increasing transformation efficiency taught by Cai et al, to use lipoic acid as described in Packer et al as the antioxidant. One of ordinary skill in the art would have been motivated to do so because Packer et al teach that lipoic acid is the ideal antioxidant (pg 228, right column, paragraph 2).

10. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ciccarone et al (US Patent Application Publication US 2003/0096414, filed March 2001).

The claims are drawn to a method of transforming plant cells and regenerating a transformed plant therefrom by culturing the plant cell on media containing the antioxidant lipoic acid.

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Ciccarone et al teach a method for introducing a macromolecule into a plant cell in culture, wherein the method comprises transforming a plant cell with a nucleic acid and culturing the cell on medium comprising valeric acid (claims 64, 80-82, 92-93). Teach that an exemplary valeric acid is lipoic acid (¶33, 34). Lipoic acid is preferably used in the concentration range of 0.0004 - 0.01 g/L (Table 1); this corresponds to 1.9 - 48.5 μ M. Ciccarone et al do not teach regenerating a plant from the transformed plant cell.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of culturing a transformed plant cell on media containing lipoic acid taught by Ciccarone et al to regenerate the transformed plant cell into a whole plant. One of ordinary skill in the art would have been motivated to do so because the whole plant is the useful product, for example for producing seeds that can be grown in a field.

Conclusion

11. No claim is allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, Ph.D., whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0975.

The central fax number for official correspondence is (571) 273-8300.

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November 18, 2009

/Anne R Kubelik/

Primary Examiner, Art Unit 1638